

will appear on the 15th of each month hereafter. Subscriptions may be sent to the publisher, T. Noordhoff, at Groningen. Although but few Americans, even in New York, have kept up their knowledge of the Dutch language, yet those who are familiar with English and German will easily read the simple technical language of this journal, and we doubt not that it will find a wide circulation in Holland and her colonies, all of which have done so much for meteorology. The present number contains several leading articles, such as those by Groneman on the caps that form over the cumuli; the editorial review of meteorology in Mexico and of the climate of that country; the summary of Claxton's attempt to standardize the readings of the solar radiation thermometers; Monnet's article on the singing of telegraph and telephone wires as a prognostic of coming weather. These and a number of smaller articles fill up the sixteen pages, with the best of technical matter, presented in as popular a style as is practicable, in a way to thoroughly interest and instruct the reader.

WEATHER CABLEGRAMS FROM THE AZORES.

For a number of years past the Weather Bureau has sent a daily cablegram, in cipher, to the Meteorological Office in Paris, giving the forecasters at that place a concise synopsis of the barometric condition and the storms on this side of the Atlantic. Señor Francisco Chaves, Director of the Meteorological

Observatory at Ponta Delgado, on the Island of St. Michael in the Azores, is about to be put in direct connection with both Europe and America and has arranged that the daily cablegram for Paris shall be sent to him also by the Weather Bureau. This cablegram will include information from the Hydrographic Office about the derelicts, ice, and other matters that may interest him. In return for these he will send the Chief of the Weather Bureau such meteorological data as may be of interest to our forecasters and such other information, in regard to storms and vessels as may be desired, either by the Weather Bureau or the Hydrographic Office. These cablegrams will be sent by the Bureau to the Hydrographic office, so that both these institutions will profit by these international exchanges.

PINEAPPLE GROWING IN SOUTHERN FLORIDA.

In the June report of the Florida section Mr. A. J. Mitchell, Section Director, introduces two photogravures illustrating the growth of pineapples in that State. The bulk of the pineapple crop comes from the lower southeast coast; it is strictly a Florida industry. The severe winters of the past few years have made the business seem rather hazardous, but great success has attended the efforts to protect the pinneries from frost. The Weather Bureau warnings are indispensable to the success of this important crop.

THE WEATHER OF THE MONTH.

By ALFRED J. HENRY, Professor of Meteorology.

The chief characteristics of June weather were (1) an unusual persistence of areas of high pressure in the Lake region, giving northerly winds and cool weather; (2) heavy rains and excessively cloudy weather in the east Gulf States and Tennessee, the western part of Virginia, and the District of Columbia; (3) high temperatures west of the one hundredth meridian; and (4) absence of severe local storms and tornadoes.

PRESSURE.

The distribution of monthly mean pressure is graphically shown on Chart IV, and the numerical values are given in Tables I and X.

Mean pressure was highest (30.04 inches) on the north Pacific coast and lowest (29.70) in the middle Plateau region. It was decidedly below the normal (from .05 to .10 inch) in the upper Missouri Valley, the northern Rocky Mountain region, and thence westward to the Pacific coast. Pressure was also below normal from the central Mississippi Valley northward to Newfoundland and the mouth of the St. Lawrence. The regions over which pressure was in excess of the normal were the immediate coast of the Carolinas, a portion of the eastern Rocky Mountain slope, the upper Lake region, and a portion of the California coast.

TEMPERATURE OF THE AIR.

The distribution of monthly mean surface temperature, as deduced from the records of about 1,000 stations, is shown on Chart VI.

Temperature was above the seasonal normal from about the ninety-fifth meridian westward to the Pacific. Over this large area temperature was from 1° to 7° above the normal throughout the month. Temperature was also above the seasonal average in New England, New York, eastern Pennsylvania, and New Jersey. In the upper Lake region and thence southeastward to the Gulf and south Atlantic coasts temperature was below the seasonal average by amounts ranging from a fraction of a degree to nearly 3° in extreme cases.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England.....	10	63.6	+ 0.8	+ 2.3	+ 0.4
Middle Atlantic.....	12	71.4	+ 0.6	+ 1.0	+ 0.2
South Atlantic.....	10	76.7	- 0.5	- 4.9	- 0.8
Florida Peninsula.....	7	77.9	+ 0.1	- 6.5	- 1.1
East Gulf.....	7	77.8	- 1.1	- 8.2	- 1.4
West Gulf.....	7	80.3	+ 1.2	+ 1.3	+ 0.2
Ohio Valley and Tennessee.....	12	73.5	- 0.5	- 3.4	- 0.6
Lower Lake.....	8	66.6	- 0.5	- 2.5	- 0.4
Upper Lake.....	9	61.6	- 0.7	+ 6.0	+ 1.0
North Dakota.....	8	67.2	+ 2.7	+ 29.0	+ 4.8
Upper Mississippi Valley.....	11	71.1	- 0.1	+ 5.5	+ 0.9
Missouri Valley.....	10	73.1	+ 1.5	+ 16.6	+ 2.8
Northern Slope.....	7	68.7	+ 5.9	+ 30.0	+ 5.0
Middle Slope.....	6	74.2	+ 2.6	+ 12.8	+ 2.1
Southern Slope.....	6	76.8	+ 0.9	+ 2.6	+ 0.4
Southern Plateau.....	15	75.4	+ 0.7	+ 11.7	+ 2.0
Middle Plateau.....	9	69.2	+ 5.3	+ 24.6	+ 4.1
Northern Plateau.....	10	66.2	+ 5.2	+ 23.2	+ 3.9
North Pacific.....	9	59.6	+ 1.4	+ 13.9	+ 1.4
Middle Pacific.....	5	62.7	+ 0.9	+ 8.2	+ 1.4
South Pacific.....	4	68.2	+ 1.7	+ 11.2	+ 1.9

Maximum temperatures ranging from 100° to 109° were quite generally recorded from the Rio Grande Valley northward over the eastern slope of the Rocky Mountains to the British Possessions. A maximum temperature of 100° was

not recorded at any Weather Bureau station in the Mississippi Valley or to the eastward thereof during the month.

In Canada.—Prof. R. F. Stupart says:

The mean temperature was equal to or above average over the whole Dominion, excepting in the upper Ottawa Valley, the districts of Algoma and Nipissing, and in some few localities in eastern Ontario. The greatest positive departures, about 4°, occurred in Manitoba and Assiniboia, and the largest negative departures reported were 2°, at both White River and Bisset, in Ontario. Extremes were pronounced, and especially so in Manitoba and the Territories, where from 6th to 8th and on the 13th a cold wave prevailed, and frost was recorded in many parts. This was followed, about the middle of the month, by intense heat, and June 21 to 23 the temperature rose above 100° in most localities.

PRECIPITATION.

The month was a dry one except in some districts, where the downpour was remarkable. The regions having a heavy fall were: Mississippi, Alabama, Georgia, Florida, the Carolinas, the District of Columbia, portions of Virginia, and the north Pacific coast. In the last-named region as much as 10 inches of rain fell in localities where the normal June rainfall is less than half as much. Taking the region as a whole the fall was 188 per cent of the normal. In the east Gulf States the fall was even more extraordinary, the average for the district being 13.02 inches, or 254 per cent of the normal. In some of the regions of heavy rainfall, as in the District of Columbia, the fall was local, places 30 to 40 miles distant receiving only a half or a third as much, but in both the east and west Gulf States and Tennessee the fall was uniformly heavy. Less than the usual amount of rain for June fell in the Lake region, the upper Ohio, the middle and upper Mississippi and the Missouri valleys, the eastern slope of the Rocky Mountains, and locally throughout New York, the Middle Atlantic States, and New England.

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		Inches.	Inches.
New England	10	2.19	65	-1.2	+0.9
Middle Atlantic	12	3.96	108	+0.8	-2.3
South Atlantic	10	6.30	126	+1.3	+1.6
Florida Peninsula	7	9.26	146	+2.9	+9.7
East Gulf	7	13.02	254	+7.9	+11.1
West Gulf	7	8.98	103	-0.1	+0.6
Ohio Valley and Tennessee	12	4.97	119	-0.8	-5.1
Lower Lake	8	2.68	75	-0.9	-1.7
Upper Lake	9	2.06	55	-1.7	-4.5
North Dakota	8	1.53	39	-2.4	-5.7
Upper Mississippi Valley	11	2.34	61	-1.8	-3.8
Missouri Valley	10	3.47	81	-0.8	-3.3
Northern Slope	7	0.77	32	-1.6	-1.4
Middle Slope	6	1.93	62	-1.2	-0.1
Southern Slope	6	2.10	60	-1.4	+1.0
Southern Plateau	15	0.29	59	-0.2	-1.2
Middle Plateau	9	0.29	49	-0.3	-1.1
Northern Plateau	10	0.86	59	-0.6	-1.2
North Pacific	9	4.27	188	+2.0	-0.3
Middle Pacific	5	0.67	118	+0.1	-4.2
South Pacific	4	0.02	17	-0.1	-4.2

In Canada.—Professor Stupart says:

The rainfall was in excess of the normal in British Columbia and Alberta; also in some few localities in the more eastern and central counties of Ontario, in the eastern townships and in New Brunswick, near the Bay of Fundy. In Manitoba and the larger portion of the territories, however, there was a pronounced drought, and a deficiency was also marked in Ontario near the shores of the Great Lakes. In Alberta the rainfall seems to have been ample. On June 8 there was an all-day snowstorm over the greater portion of Alberta; four inches lay on the ground in some localities. In Manitoba there was scarcely any rain until quite the end of the month, after great damage had been done by drought and intense heat. The only really good rain in southern Ontario occurred on the 1st, when over an inch fell.

HAIL

The following are the dates on which hail fell in the respective States:

Alabama, 5. Arizona, 28. Arkansas, 11. California, 10, 11, 13, 15. Colorado, 1, 2, 3, 4, 6, 9, 10, 11, 12, 13, 14, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30. District of Columbia, 8. Florida, 18. Georgia, 16. Idaho, 3, 4, 8, 14, 15, 23, 24, 30. Illinois, 11, 28, 29. Indiana, 29. Indian Territory, 8. Iowa, 6, 9, 12, 16, 21, 30. Kansas, 1, 2, 4, 6, 7, 8, 9, 11, 12, 15, 16, 17, 20, 21, 27, 28, 29. Kentucky, 7, 8, 30. Louisiana, 8, 14. Maryland, 8. Michigan, 5, 7, 26, 27, 29. Mississippi, 4. Missouri, 6, 7, 8, 10, 12, 13, 16, 17, 21, 23, 29. Montana, 2, 8, 16, 18, 22, 23, 24, 25, 27. Nebraska, 1, 2, 3, 6, 9, 11, 12, 14, 15, 16, 17, 20, 27, 28, 29. Nevada, 10, 13. New Jersey, 27, 29. New Mexico, 2, 7, 8, 10, 11, 12, 16, 19, 20, 21, 23, 25, 26, 29. New York, 2, 3, 8, 19, 26, 27, 28. North Carolina, 8, 30. North Dakota, 2, 12, 26, 27. Ohio, 7, 8, 21, 27, 28. Oklahoma, 1, 8, 9, 11, 13, 18. Oregon, 13, 15, 23, 29. Pennsylvania, 2, 8, 11, 18, 19, 28. South Dakota, 12, 27. Tennessee, 30. Texas, 4, 10, 19. Utah, 9, 10. Virginia, 8, 11, 21, 26, 30. Washington, 24, 29, 30. Wyoming, 3, 9, 10, 14, 24.

WIND.

The maximum wind velocity at each Weather Bureau station for a period of five minutes is given in Table I, which also gives the altitude of Weather Bureau anemometers above ground.

Following are the velocities of 50 miles and over per hour registered during the month:

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Boise, Idaho	13	55	nw.	Mount Tamalpais, Cal.	20	67	nw.
Cleveland, Ohio	7	54	w.	New York, N. Y.	27	50	nw.
Denver, Colo.	14	51	nw.	Do.	28	54	nw.
El Paso, Tex.	23	50	ne.	Oklahoma, Okla.	18	50	nw.
Do.	24	52	nw.	Pierre, S. Dak.	27	52	nw.
Do.	30	50	nw.	Point Reyes Light, Cal.	30	72	nw.
Lincoln, Nebr.	1	50	nw.	Sioux City, Iowa	16	50	se.
Mount Tamalpais, Cal.	17	53	w.	Springfield, Mo.	17	63	nw.
Do.	18	60	nw.	Williston, N. Dak.	7	50	nw.
Do.	19	59	n.				

SUNSHINE AND CLOUDINESS.

The distribution of sunshine is graphically shown on Chart VII, and the numerical values of average daylight cloudiness, both for individual stations and by geographical districts, appear in Table I.

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	4.7	-0.4	Missouri Valley	4.4	-0.4
Middle Atlantic	5.5	+0.5	Northern Slope	3.8	-1.0
South Atlantic	5.8	+0.9	Middle Slope	3.8	+0.1
Florida Peninsula	5.5	0.0	Southern Slope	2.5	-1.6
East Gulf	6.6	+1.8	Southern Plateau	2.3	+0.4
West Gulf	4.4	-0.2	Middle Plateau	3.3	+0.3
Ohio Valley and Tennessee	6.0	+1.0	Northern Plateau	4.1	-1.0
Lower Lake	4.7	-0.7	North Pacific Coast	6.0	-0.1
Upper Lake	4.5	-0.7	Middle Pacific Coast	4.4	+1.2
North Dakota	3.7	-1.5	South Pacific Coast	3.6	+0.3
Upper Mississippi	4.7	-0.3			

HUMIDITY.

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	75	- 5	Missouri Valley.....	63	- 6
Middle Atlantic.....	72	- 1	Northern Slope	53	- 3
South Atlantic	81	+ 8	Middle Slope	61	+ 2
Florida Peninsula	80	- 1	Southern Slope	58	- 1
East Gulf	83	+ 8	Southern Plateau	27	- 1
West Gulf	79	+ 5	Middle Plateau	28	- 9
Ohio Valley and Tennessee.	76	+ 6	Northern Plateau.....	48	- 4
Lower Lake	69	- 3	North Pacific Coast.....	76	- 3
Upper Lake	70	- 3	Middle Pacific Coast.....	67	+ 2
North Dakota	57	-11	South Pacific Coast.....	66	+ 2
Upper Mississippi.....	68	- 3			

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table VII, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—Reports of 5,736 thunderstorms were received during the current month as against 5,253 in 1899 and 3,855 during the preceding month.

The dates on which the number of reports of thunderstorms for the whole country were most numerous were: 27th, 385; 28th, 374; 8th, 268.

Reports were most numerous from: Missouri, 522; Illinois, 283; Colorado, 275; Pennsylvania, 246.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, 8th to 16th.

In Canada.—Auroras were reported as follows: Father Point, 2d; Minnedosa, 4th, 23d.

Thunderstorms were reported as follows: Halifax, 30th; Grand Manan, 27th, 28th, 29th, 30th; Yarmouth, 2d, 3d, 28th, 30th; Charlottetown, 21st, 30th; Father Point, 2d; Quebec, 21st, 26th; Ottawa, 8th, 27th; Kingston, 3d, 22d, 26th, 28th, 29th; Toronto, 13th, 26th; White River, 21st, 26th, 29th; Port Stanley, 7th, 8th, 13th, 17th, 27th, 28th; Saugeen, 7th, 10th; Parry Sound, 26th, 29th; Port Arthur, 6th, 7th, 10th, 21st, 24th; Winnipeg, 5th; Minnedosa, 3d, 6th, 18th; Qu'Appelle, 2d, 17th; Medicine Hat, 15th, 16th; Swift Current, 14th, 15th, 17th, 21st, 22d, 23d, 26th; Banff, 22d, 23d, 24th, 25th, 28th; Prince Albert, 2d, 5th, 25th; Battleford, 5th, 14th, 17th, 22d, 23d, 26th.

DESCRIPTION OF TABLES AND CHARTS.

By ALFRED J. HENRY, Professor of Meteorology.

For description of tables and charts see page 214 of REVIEW for May, 1900.